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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,778	12/24/2003	Jeong Dae Seo	K-0597	9463
34610	7590	07/26/2005	EXAMINER	
FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			THOMPSON, CAMIE S	
			ART UNIT	PAPER NUMBER
			1774	
DATE MAILED: 07/26/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/743,778	SEO ET AL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Camie S. Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/07/2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-2, 5 and 9-10 are objected to because of the following informalities:

Delete the extraneous period in claim 1 after the term "dopant".

Delete the extraneous period in claim 2 after the phrase "chemical formula 2".

Delete the period in claim 5 after the phrase "one of following formulas".

Insert a period after formula H-21 of claim 5.

Delete the period in claim 9 after the phrase "one of following chemical formulas".

Insert a period at the end of claim 9 on page 37 of the claims.

Delete the period in claim 10 after the phrase "one of following chemical formulas".

Insert a period at the end of claim 10 after formula S-89.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

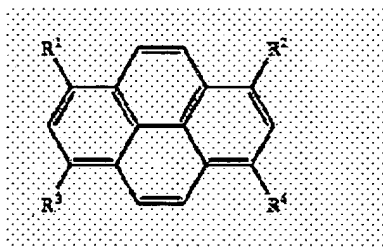
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

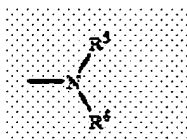
3. Claims 1-2 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Sotoyama et al., U.S. Pre Grant Publication 2004/0053069. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119, a translation of the foreign application should be submitted.

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Sotoyama discloses tetrasubstituted pyrene compounds that are suitable as a guest material when a host material is present in a light-emitting layer of an electroluminescence device (see paragraphs 0050-0051). The reference discloses tetrasubstituted pyrene compounds such as



wherein  $R^1$  to  $R^4$  may be the same or different and represent a group represented by



wherein  $R^5$  and  $R^6$  may be the same or different, and represent a hydrogen atom or a substituent group. Paragraph 0031 of the reference discloses that there is no particular limitation on the substituent group and can include alkyl and aryl groups. Paragraph 0032 of the reference discloses that the alkyl group can include linear, branched or cyclic alkyl groups having 1 to 10 carbon atoms such as methyl, ethyl, propyl, isopropyl, isobutyl, butyl and tertiary butyl as per instant claims 7-9. Also, paragraph 0033 of the reference discloses that the aryl group can include a group having a monocyclic aromatic ring, a group having five or less of fused aromatic rings or a group where four or less of the aromatic rings are bonded as per instant claims 6-9.

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The structure of the electroluminescence device is disclosed in the reference as having an organic thin film layer interposed between two electrodes (see paragraph 0046). Paragraph 0064 of the reference discloses that the pyrene compound is present in the light-emitting layer in an amount of 0.1% by mass to 50% by mass as per instant claim 2.

***Claim Rejections - 35 USC § 103***

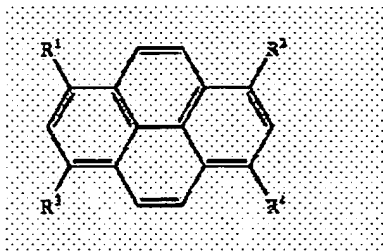
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

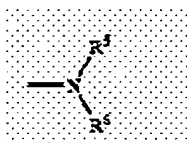
5. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sotoyama et al., U.S. Pre Grant Publication 2004/0053069 in view of Robello et al., U.S. Pre Grant Publication 2005/0123787. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119, a translation of the foreign application should be submitted.

Sotoyama discloses tetrasubstituted pyrene compounds that are suitable as a guest material when a host material is present in a light-emitting layer of an electroluminescence device (see paragraphs 0050-0051). The reference discloses tetrasubstituted pyrene compounds such as

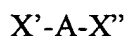
Art Unit: 1774



wherein  $R^1$  to  $R^4$  may be the same or different and represent a group represented by

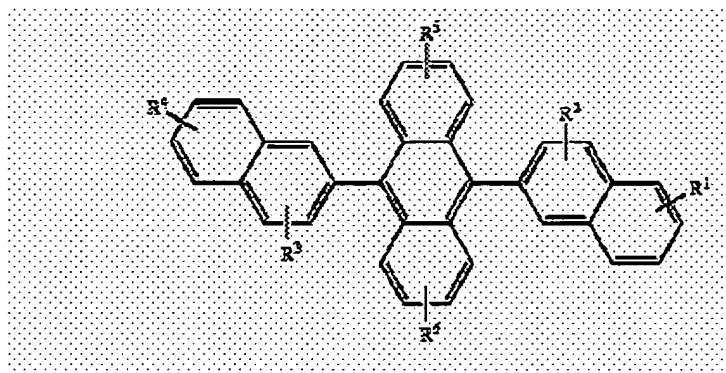


wherein  $R^5$  and  $R^6$  may be the same or different, and represent a hydrogen atom or a substituent group. Paragraph 0031 of the reference discloses that there is no particular limitation on the substituent group and can include alkyl and aryl groups. The Sotoyama reference does not specifically disclose host materials as recited by instant claims 3-5. However, the Sotoyama reference does disclose in paragraph 0052 that there is no particular limitation on the host material. Robello teaches an electroluminescent device comprising a light-emitting layer disposed between an anode and a cathode. Robello also teaches that the host material in the light emitting layer is represented by



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where in A can be a naphthalene group (see paragraphs 0016-0017). Paragraph 0137 of the Robello reference discloses derivatives of 9,10-di-(2-naphthyl) anthracene such as




wherein R<sup>1</sup> to R<sup>6</sup> represent one or more substituents on each ring and the substituents can be hydrogen or carbon atoms from 4 to 24 necessary to complete a fused aromatic ring of anthracenyl or pyrenyl, which reads on host materials, H18 and H19, of instant claim 5.

6. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not provide for the recited organic electroluminescent device wherein the blue emitting material is at least one of the following chemical formulas

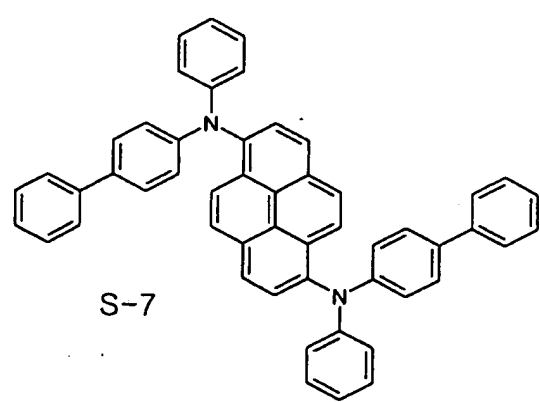
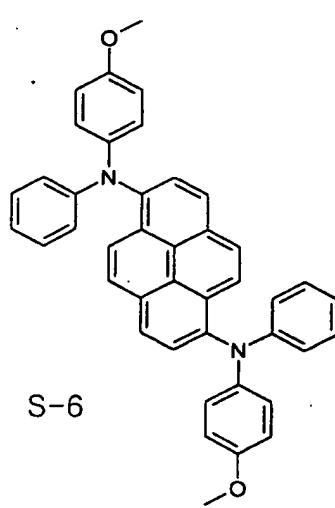
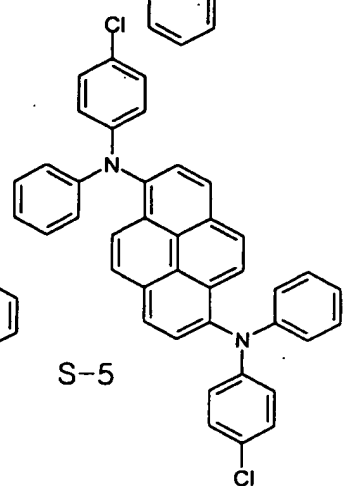
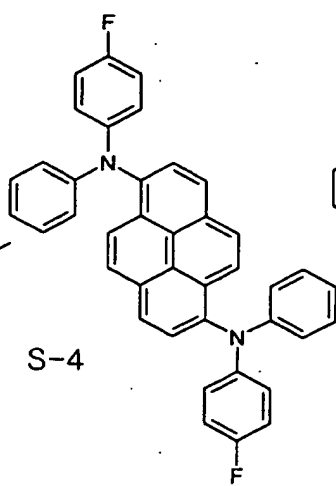
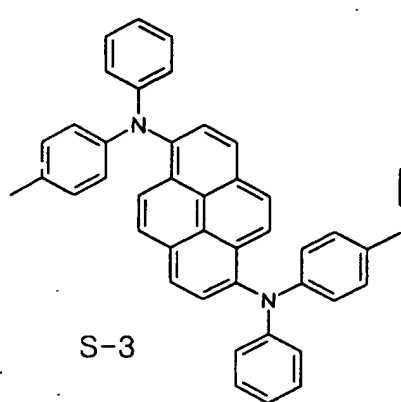
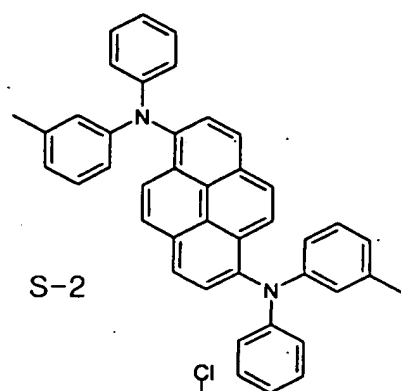
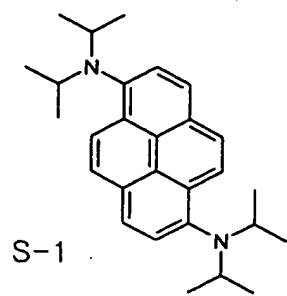
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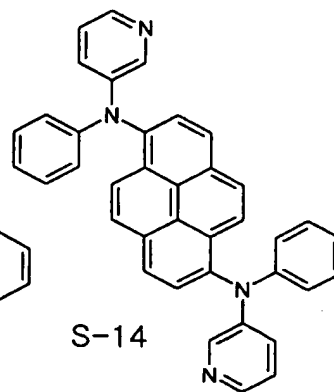
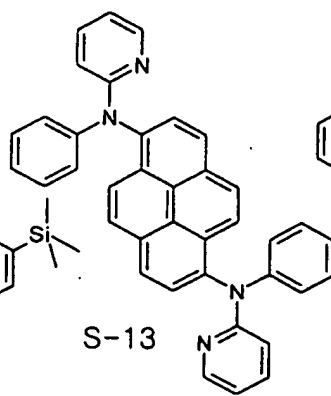
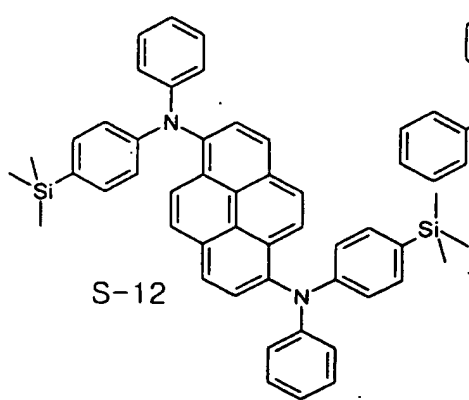
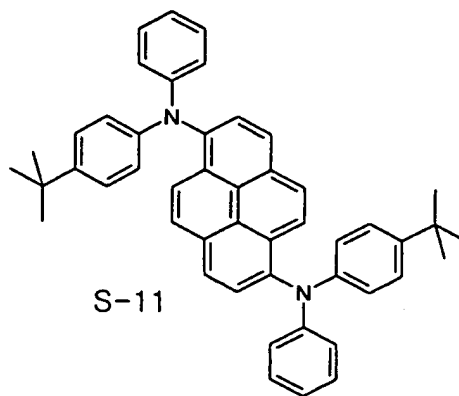
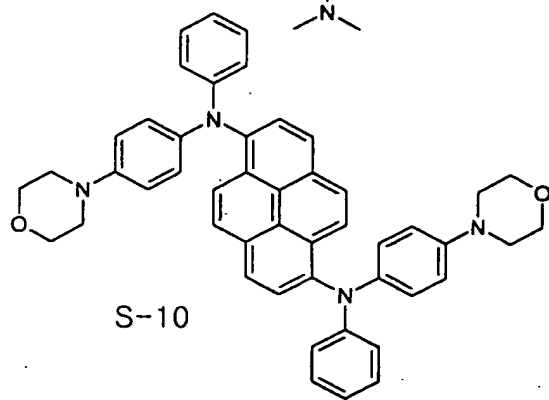
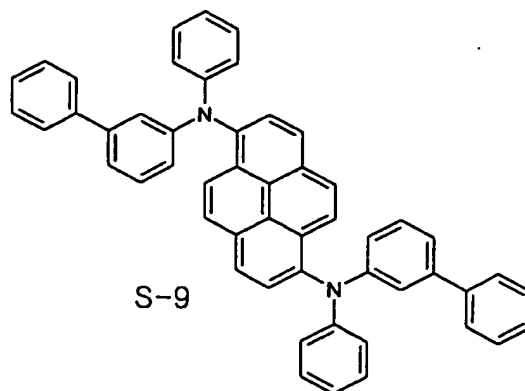
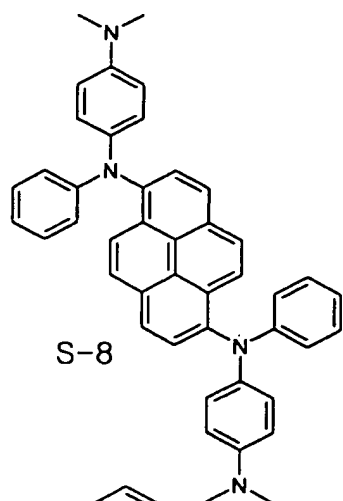
Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

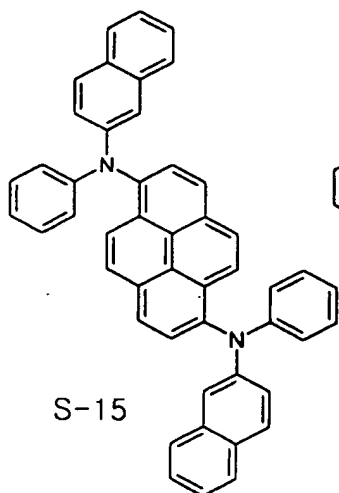
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
A.U. 1774 7/21/05

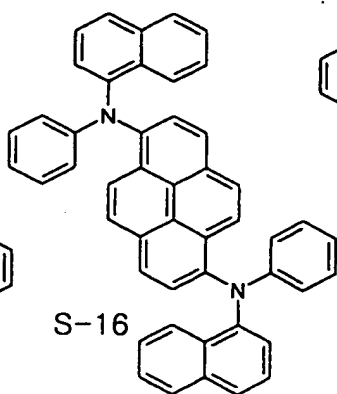




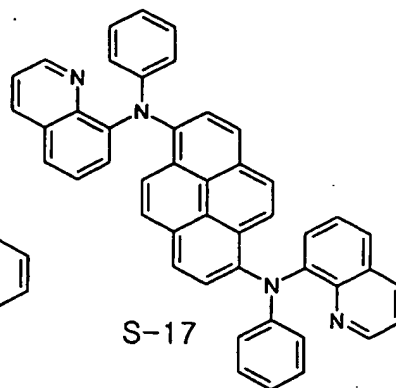




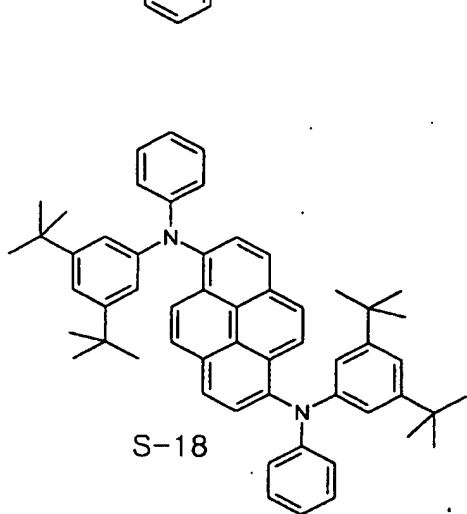
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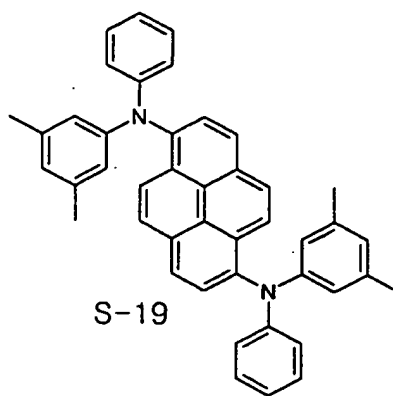
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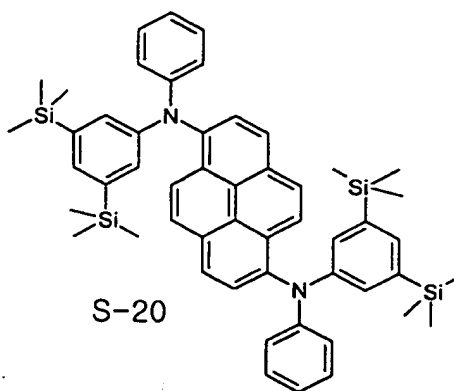
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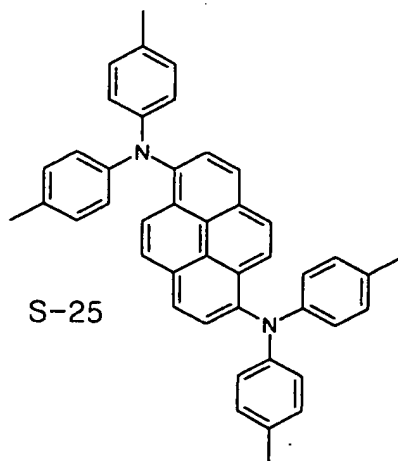
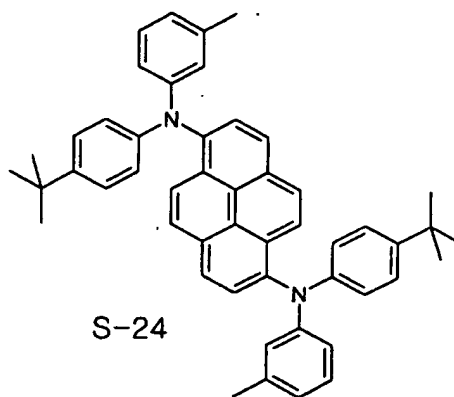
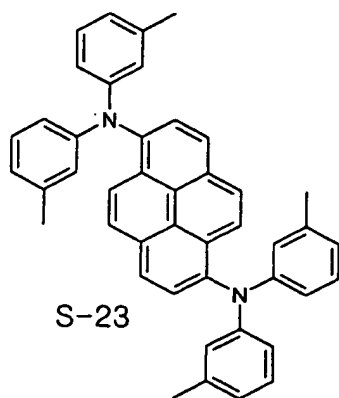
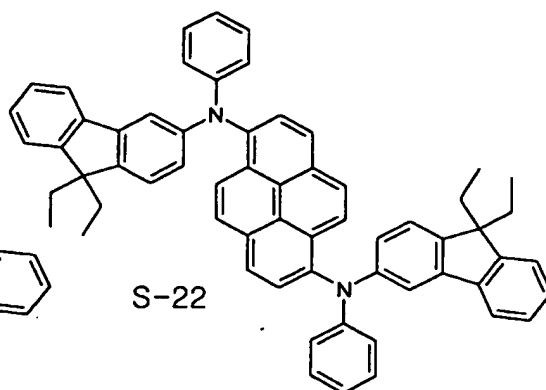
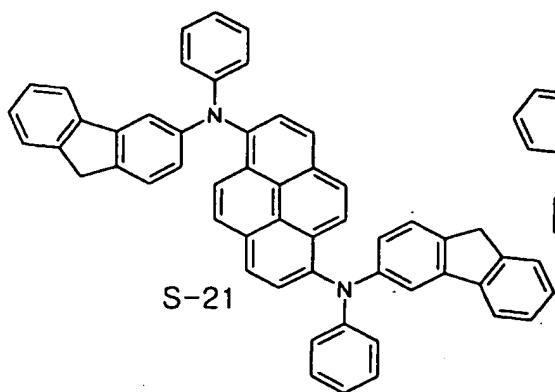
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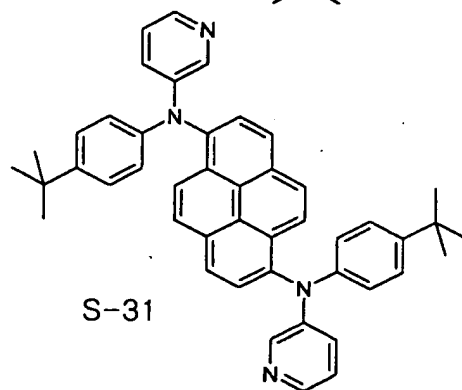
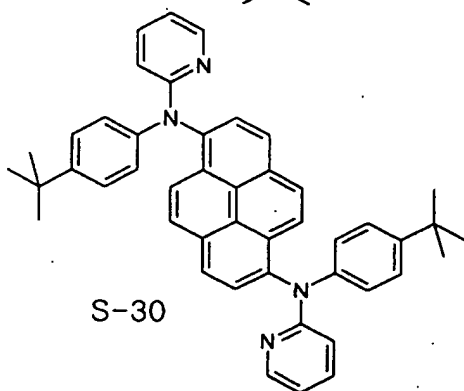
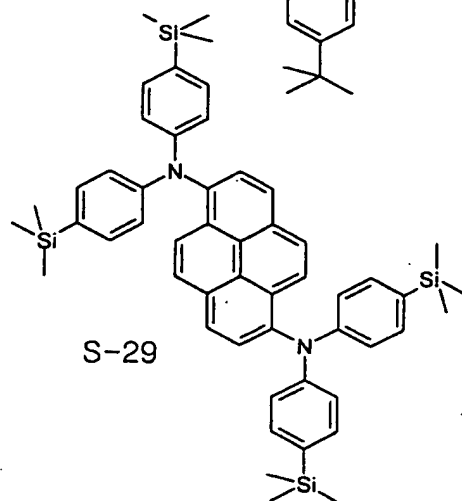
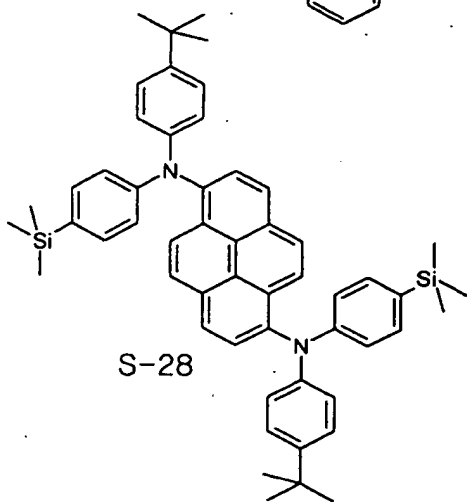
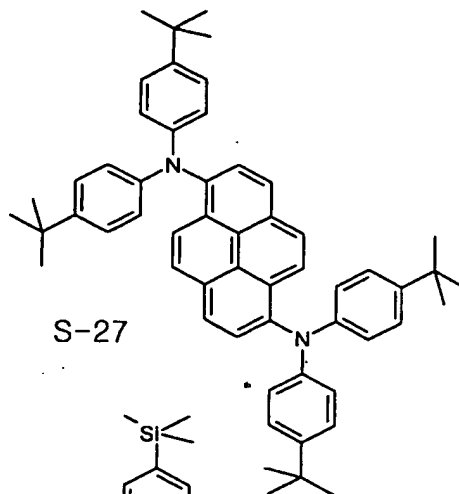
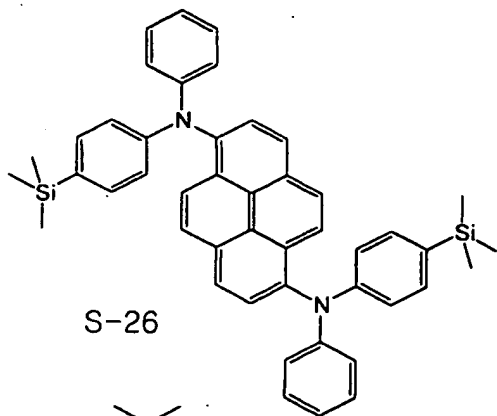


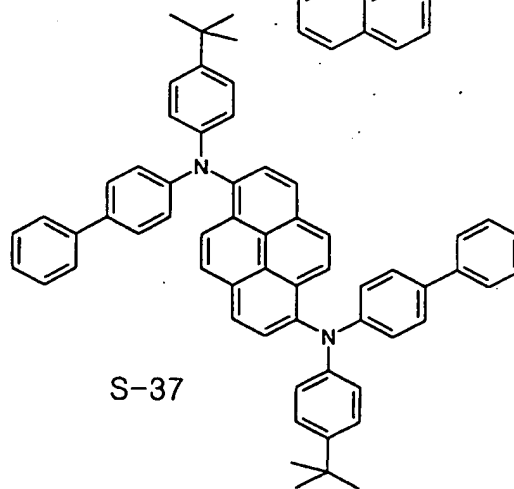
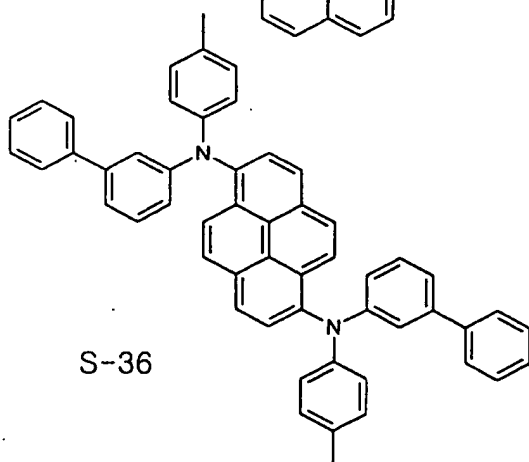
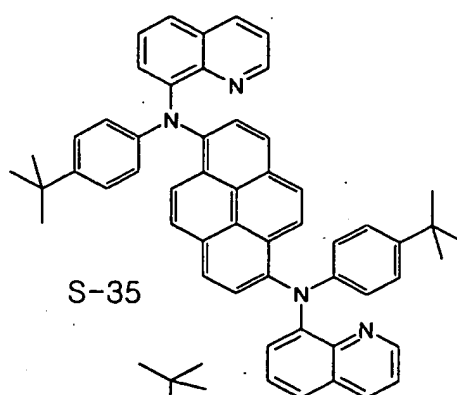
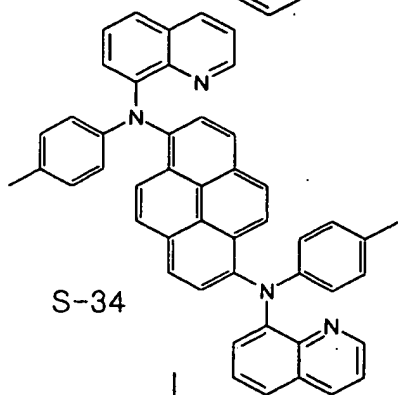
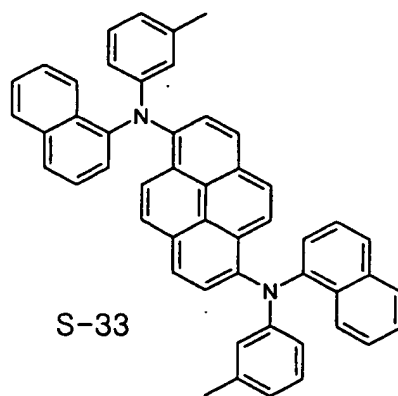
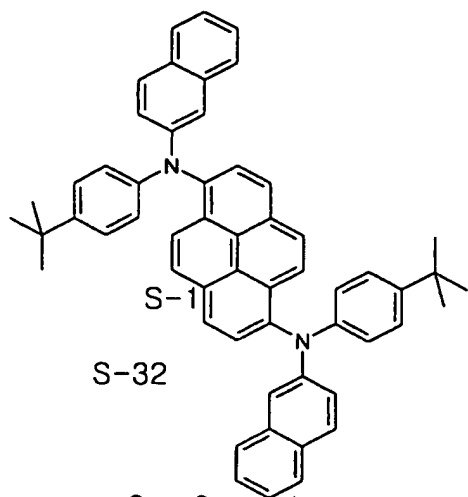
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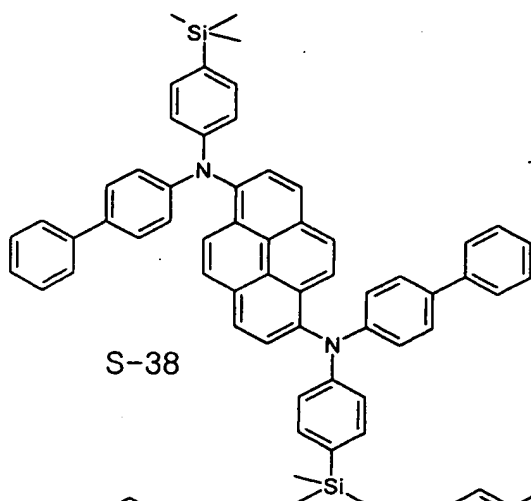


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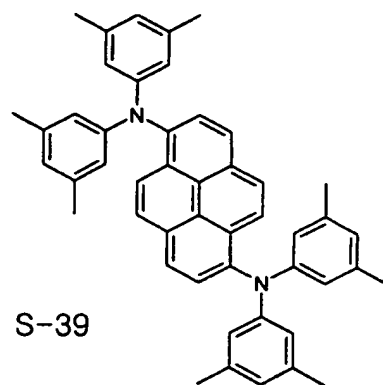




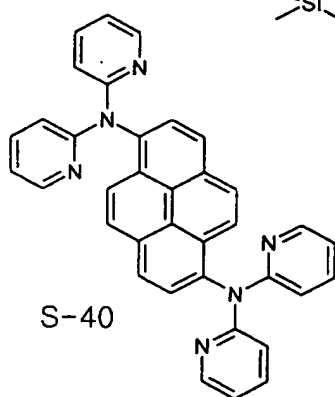




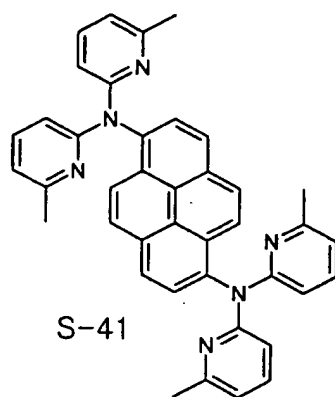
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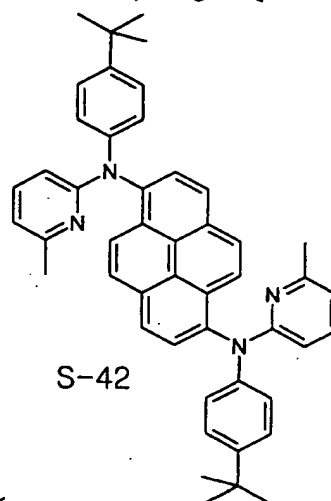
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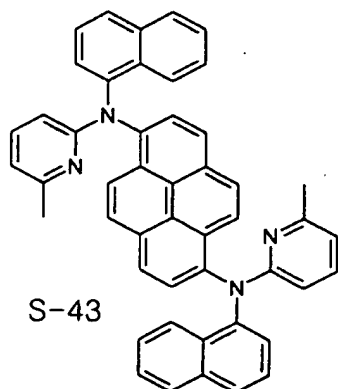
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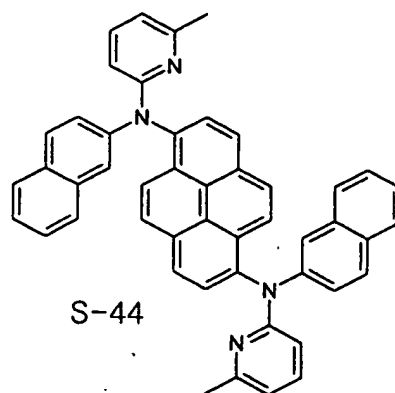
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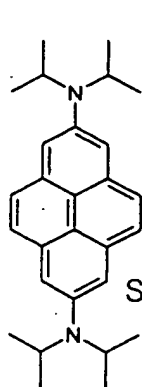
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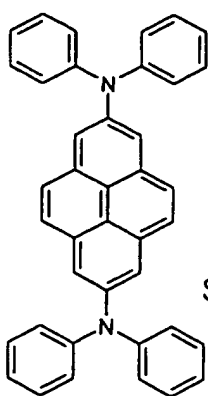
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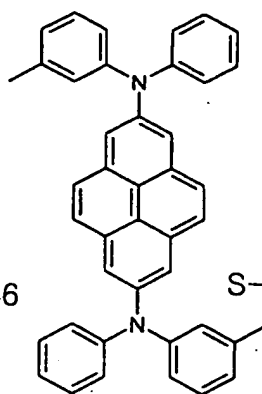
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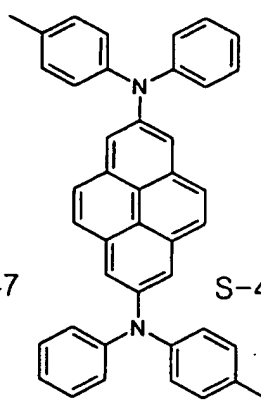
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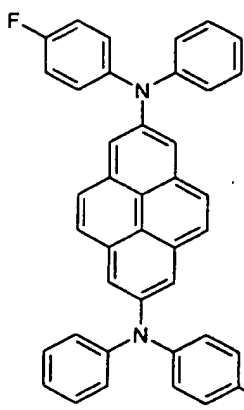
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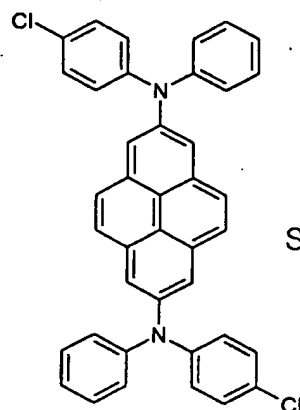
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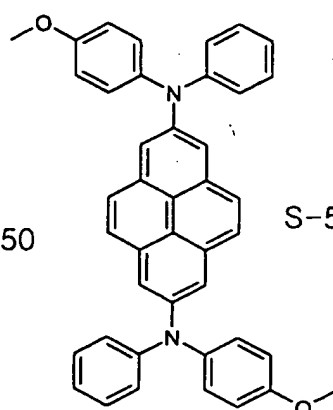
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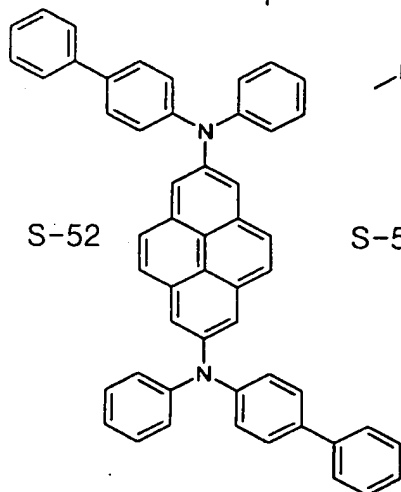
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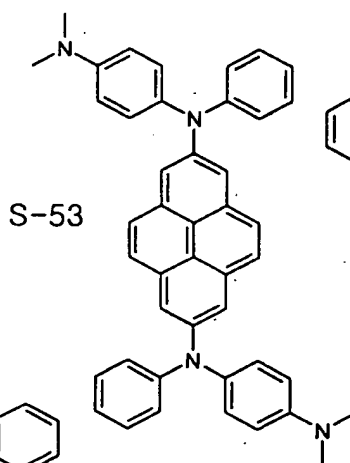
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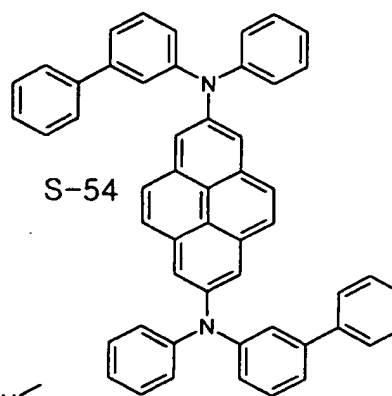
S-51



S-52



S-53



S-54



